

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

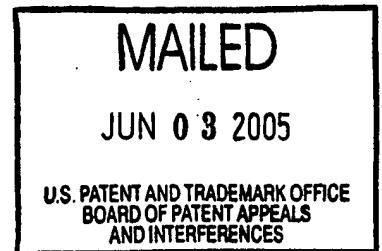
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte JAMES D. SPURGEON

Appeal No. 2005-1177  
Application No. 09/732,391

ON BRIEF



Before FRANKFORT, MCQUADE, and NASE, Administrative Patent Judges.  
MCQUADE, Administrative Patent Judge.

DECISION ON APPEAL

James D. Spurgeon originally took this appeal from the final rejection (mailed February 14, 2003) of claims 1, 2, 4, 5, 7, 12 through 14 and 18 through 24, all of the claims pending in the application. Upon consideration of the appellant's main brief (filed July 18, 2003), the examiner issued an Office action (mailed October 9, 2003) reopening prosecution and entering superseding rejections of all of the claims. Pursuant to 37 CFR § 1.193(b)(2)(ii), the appellant then submitted a supplemental brief and a request that the appeal be reinstated (both filed January 13, 2004). Implicitly granting the request, the examiner entered an answer (mailed February 20, 2004), noted a reply brief

(filed March 24, 2004) and forwarded the application to this Board for review of the new rejections of claims 1, 2, 4, 5, 7, 12 through 14 and 18 through 24.

THE INVENTION

The invention relates to a seal for a rotating machine shaft. Representative claims 1 and 24 read as follows:

1. A sealing system for a rotating machine having a stationary element and a drive element rotationally connected to said stationary element, the sealing system comprising:

a plate comprising a bearing surface, the plate for connecting to one of said drive element and said stationary element; and

a sealing assembly comprising a resilient bellows and a bearing surface, the bellows having a plurality of corrugations and a tapered collar extending inwardly from an end of the bellows, and the bellows providing a force which causes the bearing surface of the sealing assembly to bear on the bearing surface of the plate to form a dynamic seal.

24. A method for forming a resilient bellows for a sealing system in a rotating machine having a stationary element and a drive element rotationally connected to said stationary element, the method comprising steps of:

forming a bellows having a corrugated hollow body; and  
folding an end of the body inwardly to form a collar for receiving a plate.

THE PRIOR ART

The references relied on by the examiner to support the rejections on appeal are:

|                           |           |               |
|---------------------------|-----------|---------------|
| Jenkins                   | 2,464,136 | Mar. 08, 1949 |
| Donley et al.<br>(Donley) | 3,560,004 | Feb. 02, 1971 |
| Darnell                   | 3,601,413 | Aug. 24, 1971 |

THE REJECTIONS

Claims 1, 2, 4, 5, 12 through 14 and 18 through 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Donley in view of Jenkins.

Claim 7 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Donley in view of Jenkins and Darnell.

Attention is directed to the main, supplemental and reply briefs and the superseding Office action and answer for the respective positions of the appellant and examiner regarding the merits of these rejections.

DISCUSSION

Donley, the examiner's primary reference, pertains to mechanical seals for rotating machine shafts. For purposes of the appealed rejections, the examiner focuses on the machine

illustrated in Figures 1 through 3. Donley describes this machine as follows:

[i]n the embodiment of FIGS. 1 through 3, a wall member 1, which may be part of a pump housing or the like, has an opening 2 containing a rotatable shaft generally indicated at 3. On one side of the wall member 1, a stationary bearing assembly generally shown at 4 secures the shaft to the wall 1; and on the other side of the wall the shaft 3 supports a tool 5. This element, which does not form a part of the present invention, may be an impeller, mixer, stirrer, or any other element designed for rotary movement with rotation of the shaft 3. A mechanical seal, represented generally at 6, forms an essentially fluidtight enclosure between the shaft 3 and wall member 1 [column 2, lines 16 through 27].

Of particular relevance is the construction of the mechanical seal 6:

the seal unit 6 consists of two central, spring members 30 and 31 having inner . . . axially directed flanges which overlap and are resistant welded to each other. Each spring member 30 and 31 has an outer, oppositely directed flange 32 which overlap and are welded to, respectively, annular support members 33 and 34. The latter have inwardly turned ends defining annular projections which ride upon frustroconical sealing rings 35 that may be composed of carbon, polytetrafluoroethylene, ceramics, or the like. The rings 35 have oppositely directed flanges which abut against other sealing rings 36 and 37 which may also be composed of carbon, polytetrafluoroethylene, ceramics, or the like. The rest of the mechanical seal between the wall member 1 and the rotatable shaft 3 consists of annular members 38 and 40 of rigid sheet metal and for this purpose can be composed of alloys such as Monel and Inconel steel. Member 38 has an inner inturned lip which tightly grips a tapered face of ring 36 and may seat against the indicated shoulder thereon; and an

outer flange which with a gasket 41 seals the area between the bearing assembly 4 and wall member 1. Member 40 comprises two overlapped and welded parts and has an inturned lip at one end which tightly grips a tapered face of ring 37; and an outer flange which with a gasket 42 seals the annular area between the shaft 3 and worktool 5. As is understood in the art, ring 37 serves as a drive element, rotating with the shaft and at a shaft speeds. Ring 36 is stationary with respect to the bearing assembly 4 or wall member 1. Intervening rings 35, annular members 33 and 34, and spring members 30 and 31, all serve as a floating element which compensates for normal amounts of shaft deflection, misalignment, thermal expansion, and the like. In operation, the floating element automatically centralizes itself and rotates from zero to shaft speed, depending upon the friction differential generated between the faces of the frustroconical sealing rings 35 and their companion sealing rings 36 and 37 [column 3, lines 15 through 50].

In rejecting independent claim 1, the examiner finds that Donley responds to all of the limitations in the claim except for the one requiring the bellows to have a plurality of corrugations. The appellant has not specifically disputed this finding. To overcome the perceived deficiency in Donley, the examiner turns to Jenkins' teaching of a bellows seal embodying a cylindrical bellows 29 and concludes that it would have been obvious in view of such teaching to modify the bellows disclosed by Donley to have a plurality of corrugations, thereby arriving at the sealing system recited in claim 1. The appellant counters

that this rejection is unsound in essence because the proposed combination of Donley and Jenkins rests on impermissible hindsight.

During patent examination, the USPTO applies to claim verbiage the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the specification. In re Morris, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997). The ordinary meaning of claim terms also may be established by dictionary definitions. CCS Fitness Inc. v. Brunswick Corp., 288 F.3d 1359, 1366, 62 USPQ2d 1658, 1662 (Fed. Cir. 2002).

Webster's New World Dictionary of the American Language (The World Publishing Co. 1972) defines the term "bellows" as "anything like a bellows, as the folding part of some cameras, the lungs, etc.," and the terms "corrugate" and "corrugation" as "to shape or contract into parallel grooves and ridges" and "any of the parallel ridges or grooves of a corrugated surface," respectively. These definitions reflect the ordinary and

accustomed meanings of the terms and are entirely consistent with the manner in which "bellows" and "corrugations" are used in the appellant's specification and claims.

Given the above understanding of the claim language in question, Donley's spring members 30 and 31 and annular support members 33 and 34 collectively constitute not only a resilient bellows having a tapered collar extending inwardly from an end thereof as found by the examiner, but also a bellows having a plurality of corrugations, i.e. a plurality of parallel ridges or grooves as clearly shown in Figure 1 of the reference. Thus, on the record before us, the subject matter recited in claim 1 is anticipated by Donley. As anticipation is the ultimate or epitome of obviousness (see In re Fracalossi, 681 F.2d 792, 794, 215 USPQ 569, 571 (CCPA 1982)), we shall sustain the standing 35 U.S.C. § 103(a) rejection of claim 1 as being unpatentable over Donley in view of Jenkins, with the examiner's citation of Jenkins as showing a bellows having a plurality of corrugations being, at worst, superfluous. As our rationale differs significantly from that advanced by the examiner, however, we designate our action as a new ground of rejection under 37 CFR § 41.50(b) to afford the appellant a fair opportunity to react thereto.

We also shall sustain the standing 35 U.S.C. § 103(a) rejection of claims 2, 5, 12 through 14 and 18 through 23 as being unpatentable over Donley in view of Jenkins and the standing 35 U.S.C. § 103(a) rejection of claim 7 as being unpatentable over Donley in view of Jenkins and Darnell. These claims fall with claim 1 since the appellant, grouping them with claim 1 for purposes of the appeal (see page 5 in the supplemental brief), has not separately argued the patentability thereof (see In re Young, 927 F.2d 588, 590, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991); and In re Wood, 582 F.2d 638, 642, 199 USPQ 137, 140 (CCPA 1978)).

We shall not sustain the standing 35 U.S.C. § 103(a) rejection of claims 4 and 24 as being unpatentable over Donley in view of Jenkins.

Claim 4 depends indirectly from claim 1 and recites a static sealing element disposed within a gap provided between the inwardly extending collar of the resilient bellows and the thrust plate. The Donley seal has no gap between the inwardly extending collars of its resilient bellows (spring members 30 and 31 and annular support members 33 and 34) and the thrust plates (sealing rings 35) associated therewith and, notwithstanding the



examiner's conclusion to the contrary, Jenkins contains no suggestion to provide the Donley seal with such a gap or a static seal disposed therein.

As indicated above, claim 24 recites a method for forming a resilient bellows comprising the steps of forming a bellows having a corrugated hollow body and folding an end of the body inwardly to form a collar for receiving a plate. Although Donley discloses the step of forming a bellows having a corrugated hollow body<sup>1</sup> with an inwardly extending collar for receiving a plate, the examiner's finding that it also teaches the step of forming the collar by folding an end of the corrugated hollow body inwardly has no factual basis in the fair teachings of the reference.

#### SUMMARY

The decision of the examiner to reject claims 1, 2, 4, 5, 7, 12 through 14 and 18 through 24 is affirmed with respect to claims 1, 2, 5, 7, 12 through 14 and 18 through 23, and reversed with respect to claims 4 and 24. In addition, the affirmance

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<sup>1</sup>Here again, the examiner's citation of Jenkins for its disclosure of a bellows having a corrugated body, i.e., a plurality of corrugations, is superfluous.

with respect to claim 1 is designated as a new ground of rejection under 35 CFR § 41.50(b).


This decision contains a new ground of rejection pursuant to 37 CFR § 41.50(b). 37 CFR § 41.50(b) provides that "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review."

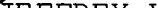
37 CFR § 41.50(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .

(2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

Charles E. Frankfort

  
JOHN P. MCQUADE  
Administrative Patent Judge

  
JEFFREY V. NASE

BOARD OF PATENT  
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PEARNE & GORDON, L.L.P.  
1801 EAST 9<sup>TH</sup> STREET  
SUITE 1200  
CLEVELAND, OH 44114-3108